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ABSTRACT

Planners, administrators, economists, and all others involved with human resources and economic development are cautioned to never underestimate the role that vocational education can play in attracting new and expanding industries. Industrial expansion means new capital investments, a vital factor to the future well being of economically depressed areas. New investments when accomplished by new jobs and adequate opportunity to train for jobs have a positive psychological effect on both those in the labor force and the owners and managers of business and industry. Capital investments in an economic region attest to the faith that indigenous personnel, the corporation, leaders of local, State, and Federal agencies have in the area's future. The monograph is in three parts. Part I discusses the role that facilities play in attracting new capital investments in distressed economic areas. Four subjects are covered: (1) Instructional Facilities: Constructed to Serve Their Role in Industrial Development; (2) State Equipment Pools: A Key Factor in Providing Trained Manpower for New Industries; (3) Mobile Vo-Tech Facilities Serve Training and Development Needs; and (4) Special Schools for Industrial Training: A Different Concept of Mobile Training Facilities. Part II focuses on the role that adequate State and local vo-tech management systems play in focusing training funds toward real and identifiable training needs: The Product and the Package of Management Information; An Effective Vo-Tech Management Information System; and Management Systems Work in State Vo-Tech Agencies. Part III consists of suggestions for making Federal agencies more effective in assisting industrial and economic development. (WL)

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Economic Development
Research Report

The Impact of Vocational and Technical Education on Manpower and Economic Development

May, 1976

by
Francis T. Tuttle
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State Department of Vocational and Technical Education
Stillwater, Oklahoma

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About the Authors

Francis T. Tuttle is presently the executive officer of the Oklahoma State Board of Vocational and Technical Education and the Director of the State Department of Vocational and Technical Education. He has held this position since 1967 and for the three years prior was State Coordinator of Area Vocational-Technical Schools in Oklahoma. He has also served as a vocational teacher, a superintendent of schools, and a junior college president.

The U.S. Department of State commissioned Dr. Tuttle as one of a three-member team to take an in-depth look at vocational education programs in the Soviet Union in 1970. In 1962 he served as a consultant on education to the Swedish Government and in 1971 served as a vocational education consultant for Oklahoma State University in Thailand as well as serving for the U.S. Office of Education and a number of states as a consultant on Management Information Systems and vocational education as it relates to economic development.

Arch B. Alexander has served as the Deputy Director of the Oklahoma State Department of Vocational and Technical Education for the past eight years. During this time he served as a consultant on the staff of the late A. Wade Martin, Executive Director of the Technical Education Committee in South Carolina, as they developed an economic development and skills training program for the Coastal Plains Regional Commission in 1968 and 1969.

Among Mr. Alexander's interests in Vocational Education are specialized manpower training to meet the start-up needs of new and expanding industry, personnel development to provide appropriately trained instructors to support the wide variety of vocational education training programs, and curriculum development for vocational education at all levels.

In addition to his work in the field of vocational education, Mr. Alexander has maintained a role with the Military Reserve Forces. Today as a Colonel in the U.S. Army Reserve he is involved with writing, conducting, and evaluating exercises in support of military unit training.

Before joining the Oklahoma State Department of Vocational and Technical Education, Mr. Alexander had served as a public school teacher and administrator and had experience as dean and president of community colleges in Oklahoma.

Part I

The Role That Facilities Play in Attracting New Capital Investments in Distressed Economic Areas

Planners, administrators, economists, and all others involved with human resources and economic development are cautioned to never underestimate the role that vocational education can play in attracting new and expanding industries. Industrial expansion means new capital investments, a vital factor to the future well being of economically depressed areas. New investments when accompanied by new jobs and adequate opportunity to train for jobs have a positive psychological effect on both those in the labor force and the owners and managers of business and industry. Capital investments in an economic region attest to the faith that indigenous personnel, the corporations, leaders of local, state, and federal agencies have in the area's future.

Facilities in which to conduct skill training although of vital importance is just one factor that must be considered in the total plan for economic development. When thinking of the term facilities one must not be limited to thinking only of the buildings, the brick and mortar but, to equipment as well. An impressive vocational education structure can do little to meet the training needs of business and industry that are essential factors in any drive toward economic development without adequate, up-to-date equipment in the hands of a well qualified instructor in the skills area to be taught. It is not just the facility but the end product produced in the educational facility that assists in the development of human resources for economic development.

Usually found among the characteristics of an economically depressed area are: inadequate job opportunities, low wage scales, educational facilities including equipment that are inadequate and outdated, and a negative philosophy on the part of the local citizenry. Sometimes skill training programs in such areas continue to turn out persons trained for jobs that no longer exist or training is being conducted on equipment that is no longer utilized in the industry. A skill development training program must be in keeping with the philosophy of the area. If the philosophy being promulgated is one of economic and industrial growth then it must be recognized that workers for sophisticated industries cannot be trained in the same facilities and on the same equipment that was used to train workers for the industries of 50 years ago. For instance, a state cannot train workers for ultra-modern paper mills, particle board plants, and reforestation in the same type of facilities where lumberjacks and operators of creosoting plants for treating posts for farm fences, telephone lines, and electrical transmission lines were once developed or allowed to develop.

Educational opportunities and facilities must be flexible if public agencies are to provide personnel to support industrial development. Differentials in industrial training needs must be recognized. At least two types

of training needs must be considered. These two types are: (1) training of an initial labor force for start-up of new or expanding industry and (2) subsistence training to serve trained labor needs of existing industry.

Experience has shown that plant start-up training is best served when initiated, directed, and conducted from the state level. Subsistence training is best served by the local vocational-technical school facility or community college. Facilities and opportunities must be flexible and adjustable if the appropriate agency is to meet its obligation in the overall training plan.

Prior to enactment of federal legislation in the mid-1960's, most states supported both vocational education and economic development, but gave little attention to vocational training facilities. One only has to make a cursory inspection of a vo-tech facility built prior to World War II to see the inflexibility of its construction.

Facilities are not the only factors that influence flexibility of training. Earlier it was indicated that start-up training is best done when initiated, directed, and conducted from the state agency level. The states of South Carolina and Oklahoma have established "special schools" divisions at the state level in order to provide flexibility in start-up training for new and expanding industry. Start-up training conducted through a special schools division makes it possible to provide training on a short lead time basis where such was not budgeted by a local educational agency. Industry start-up training may go undone due to inflexibility if left entirely to a local training institution because their facilities are usually committed to ongoing occupational education programs.

New plant start-up training does not have to be conducted in a regular educational facility. The training should be done wherever it best serves the new industry's needs. This can be done in an abandoned warehouse, a vacant store building on main street, a former school building, or any place that meets the training requirement.

Some local school officials have been found to be reluctant to lease or negotiate for a training facility away from the school plant. This is especially so if space is available in the regular vo-tech school. School officials may see the extra expense of leasing facilities as an unnecessary extra even though it is better suited to the industry training program. State officials are not affected by these same real or imaginary constraints and are more likely to conduct the training where it best meets the objective.

Many examples could be quoted relative to utilizing other than formal vo-tech training facilities but two should suffice. In Oklahoma when a special schools program was established to provide start-up training for the Westinghouse Central Air Conditioning plant locating at Norman,

Oklahoma, a vacant warehouse was rented near the plant site. Factors leading to the choice of the warehouse as a training site were flexibility of the interior space of the warehouse and its close proximity to the plant. Westinghouse officials preferred that the training site be near the plant so persons being trained would develop a regular transportation pattern as near as possible to the transportation pattern of employees once the plant was opened.

The second example relates to the Hesston Manufacturing Plant located in Claremore, Oklahoma. Had the vo-tech training facility in the area been responsible for the start-up training, they might have insisted that the training take place on the vo-tech campus about ten miles from the plant. The state agency which is responsible for start-up training elected to conduct the special school in space available in Claremore near the plant site.

Many factors demand adequate attention if skill training is to supply appropriate human resources in support of economic development. Flexibility is the key word. Flexibility within the vocational training facility's physical limitation is just one facet of concern. Flexibility in the facilities utilization by local educational officials, flexibility of availability of equipment to support needed training, flexibility in taking training to the people to be trained or to the industry which will utilize the trained personnel are areas of equal importance.

A pool of industrial training equipment can provide great flexibility as to what training can be done and how rapidly it can be initiated in any selected section of the state or economic area. The more varied the equipment in the pool the greater the possibility is that training agencies can respond quickly to meet an industry's needs.

Today's industrial manpower needs demand highly mobile training programs. Not only does industry's needs demand mobile training facilities and training programs but the current philosophy of the people is to insist that appropriate training opportunities be brought to them. This can be accomplished utilizing the concept of the equipment pool and a concept of mobility much larger than typically envisioned. The Oklahoma and South Carolina "special schools" program typifies the mobility concept that is referred to here.

Flexibility must be philosophically present within the public agency officials and boards that control vocational education. Facilities may have to be used for purposes different from those for which they were constructed or are currently used. Training which was once not considered in the province of vocational education may need to be provided by a vocational education agency.

A public agency cannot provide appropriate training if it is engulfed in red tape, insurmountable regulations, and paper work. The fact that

industry appreciates flexibility on the part of the state agency responsible for vo-tech training is evidenced by a recent letter Oklahoma Vo-Tech officials received from Phillip Eubanks, President of Fairview Machine and Manufacturing. Eubanks states, "We were very pleased with the results of the training program, evidenced by the fact that program graduates went right into production . . . I still find it hard to believe a state program can be as practical and flexible as the Vo-Tech program."

Instructional Facilities: Constructed to Serve Their Role in Industrial Development

Webster's Dictionary describes or defines the word facility as "something that is built, installed, or established to serve a particular purpose." Those individuals, groups, or agencies who plan the buildings in which vocational training is to be conducted would do well to bear in mind Webster's definition.

As a point of departure, it is important that the design of the building has aesthetic value. This is of particular importance since one of the goals is to attract capital investment in the form of new industry to an economically deprived area. Another major goal of structural design of a training facility is to attract students to take advantage of the training to be offered there.

Vocational education often suffers from the lack of any tangible or visible presentation or image that attracts students. The design of the training facility can assist in improving the image of vocational education. Vocational education across the nation has been struggling for the past two decades to overcome the image that was created over the years by relegating vocational training to school building basements, back rooms, and outbuildings. The facilities available to vocational education led to the low esteem in which it was held by student peer groups. The poor quality of the vo-tech training facilities reflected an image of a substituted program serving students who could not succeed in the academic classrooms. This resulted in the programs being held in low esteem and students being turned off to the ultimate value of vocational training. The image projected was a distortion of reality but, nevertheless, the damage was done and must be overcome.

When a new vo-tech training facility is constructed, the opportunity is presented to dedicate space, construction, and design to serve vocational training's specific needs. If the area in which the training facility is to be located suffers from economic deprivation an outside source of funds must be tapped to secure adequate resources to ensure the economic feasibility of the building's construction.

For a number of years the Economic Development Administration (EDA) assisted economically depressed areas to get a "hand up" toward recovery. The EDA along with various regional commissions provided assistance to build and equip training facilities for vocational education. These facilities have led to a more adequately trained work force and have attracted new capital investments to the territory served by the training facility.

Increasing the educational level of people, particularly in vocational-technical skills, provides many citizens assistance in obtaining initial

employment or more satisfying or rewarding employment. By assisting people to achieve greater competencies and skills, communities are more effective in attracting industrial enterprises. Industries are attracted to an area because of the availability of a motivated, enlightened, and trained or trainable potential work force. A trained work force for business and industry is the goal to which a new vo-tech training facility must be dedicated.

Has the building of new, modern, flexible vocational training facilities attracted industrial investment capital to an area? Oklahoma officials think so and make reference to comments of industrial executives. Glen Willis, Whirlpool Corporation Vice President of Laundry and Refrigeration Products, pointed out that factors favoring the location of a new plant in Ponca City, Oklahoma, included the available plant site located near the new Pioneer Area Vocational-Technical School. Frank Tettemer, President of Electron Corporation locating a plant at Blackwell, Ponca City's neighboring city to the west, made special reference at the ground-breaking ceremonies to the training arrangements that will be possible at the new Pioneer Area Vo-Tech School in Ponca City saying, "It will be of great value to Electron."

VADA of Oklahoma Inc., located at Springer, Oklahoma, nine miles north of Ardmore, commented that "most of the employees were trained at the Southern Oklahoma Area Vocational-Technical Center at Ardmore." Norman Langenfield, President and Board Chairman of Raleigh Industries of America, in dedicating Raleigh's only U.S. plant at Enid, Oklahoma, referred to several factors influencing Raleigh to locate in Enid as being "the positive attitude of the people, the fine vo-tech school, and the city's apparent desire to bring in quality industries." Worthington Pump officials indicated that weighing heavily in its decision to locate in Shawnee, Oklahoma, was the Gordon Cooper Area Vocational-Technical School located at Shawnee. Mark A. Gales, President of Kellwood, in announcing the company's decision to locate a fifth plant in Oklahoma at Pauls Valley, pointed to such factors as "the prime industrial site adjacent to Interstate Highway 35 and the availability of training facilities of the new Mid-America Area Vocational-Technical School nearby." Ardmore, Oklahoma, Chamber of Commerce reports that "its juiciest industrial plum was and is the Uniroyal Tire Plant, a $75-million dollar investment, and that one prime piece of evidence that Uniroyal pointed to was that Ardmore had prepared itself for industry with the Southern Oklahoma Area Vocational-Technical Center." Opening with a small initial production work force, Uniroyal has progressed toward its announced goal of 1,300 employees. A concomitant growth has been experienced by the Southern Oklahoma Area Vocational-Technical Center. Within four years it had outgrown initial facilities and with the aid of a $400,000 grant from EDA has doubled its facilities. While it has been pointed out here that a new vo-tech facility leads to capital investment on the part of business and industry, it is

conversely a fact that capital investment in business and industry leads to increased investment in vo-tech facilities.

Up to now this portion of the monograph has been devoted to the psychological and philosophical aspects of Vo-Tech buildings and facilities. Equal consideration should be devoted to the engineering and design of the internal portion of the facility. Flexibility of internal use of a vo-tech training facility must be designed into the structure. Consideration must be given to utilizing a minimal number of internal load-bearing walls so laboratory and shop space may be expanded and contracted with relative ease to facilitate altering programs to meet changing demands for training.

Bus bars should be the major source of distributing electrical service to shops with little dependence on electrical power circuits located in or on partition walls. Electrical service of up to 440 volts should be provided to the vo-tech training facility. Adequate provision should be made for service channels to provide an exhaust system and compressed air distribution system.

Adequate outside entrances should include overhead doors for all shop and laboratory areas, thus facilitating installation and removal of training equipment and live work projects. Rarely should vo-tech training facilities consist of multiple floors because this limits flexibility. Upper floors of multiple floor structures could be used for administrative and counseling services, student centers, office occupation training, drafting and design, health occupations training, etc., but the inflexibility hampers much training necessary to serve the "heavy" industries.

Some building authorities say that it is unwise to build a vo-tech facility with a life expectancy greater than 20-25 years. Certainly the longer the life expectancy of the building, the greater the flexibility that must be designed and built into it.

State Equipment Pools: A Key Factor in Providing Trained Manpower for New Industries

When a state system of education and training commits to being a key factor in industrial development and thus to economic development, it must look to its "balance sheet" to see what assets and liabilities it has to perform this function. Liabilities must be overcome. Assets must be increased. One asset that must be developed to its fullest is a state-owned pool of training equipment.

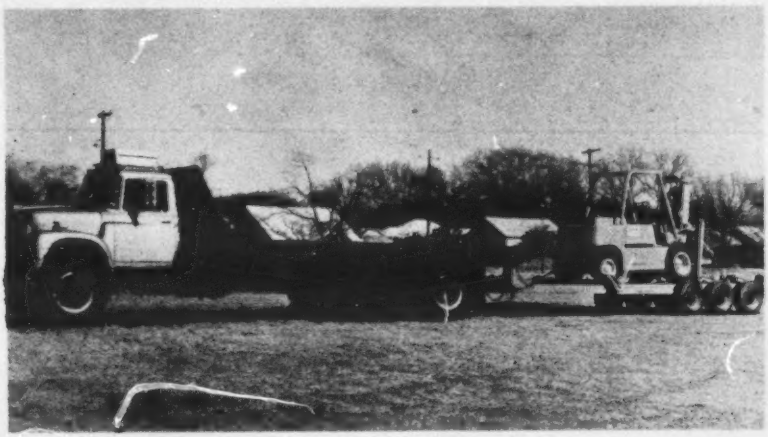
The establishment of a state pool of training equipment should be among the first priorities of the state agency responsible for directing or conducting training to support industrial development. In most states the training equipment is owned by institutions such as the community colleges and vocational-technical schools. Even if a state owns the equipment and it is considered as a pool of equipment, this is not the "equipment pool" referred to in this paper. In this document, equipment pool refers to a pool of equipment to be utilized in providing relatively short-term, one-shot training programs in direct support of industrial development. To pass on without comment regarding the state's ownership of all occupational training equipment regardless of the type of institution or its location geographically would be negating the true value of such an arrangement. The state's ownership of all equipment for vocational training provides a degree of flexibility that is impossible under any other arrangement. State-owned equipment can be assigned to institutions throughout the state wherever it is needed to support occupational training. It can be loaned to an institution as long as a need exists for personnel trained on such equipment. Once the need has been met, the equipment can be transferred by the state for utilization in some other geographic location. When equipment for training is owned by local educational agencies, there is a tendency to keep the training program going long after the training needs have been met because "we already own the equipment." In addition, some states have laws that block transferring or loaning equipment. Checking the balance sheet we find state-owned equipment provides greater flexibility and should be listed as a major asset. Locally owned training equipment lends itself to inflexibility of training programs and should be considered as a liability.

Each state which wants to be able to respond to immediate training needs in support of industrial development should establish a pool of available equipment. The equipment should be that which is commonly needed to train the start-up labor force for the industries being recruited or existing industries which are expanding their work forces. It is impossible to authoritatively say what the inventory of this special equipment pool should contain without detailed study. It will vary from state to state depending upon the industrial development assets of each state. Some of the assets which affect industrial development and affect the type of

industries recruited, thus the equipment pool inventory, are resources such as coal; electricity; natural gas; raw water; and availability of waste water treatment facilities. Other assets to be considered are availability of work force either trained or untrained, sophistication of the training of the existing work force, and transportation facilities available such as major highways, railways, waterways, and airports.

Before deciding on the kind of equipment to stock in the state equipment pool, the appropriate agencies would do well to study the type of industries that located or expanded within the state in the past five years. The type industries being recruited by industrial development agencies is important. There is no point in bringing sophisticated electronic equipment into the pool inventory when the state's labor force is untrained or undertrained, when no industry utilizing sophisticated electronic gear has located in the state in the past five years, or when no such industries are on the prospect list for industrial development agencies.

As experience is gained in providing training for new and expanding industries, equipment can be purchased to "tool up" to the training that is needed. There is a base inventory of equipment that can be purchased for the equipment pool by studying plant equipment of existing industries in the state and those being actively recruited. This base inventory should consist of welders, lathes, mills, drill presses, certain test equipment, warehouse handling equipment, trucks, tractors, trailers, forklifts, etc.

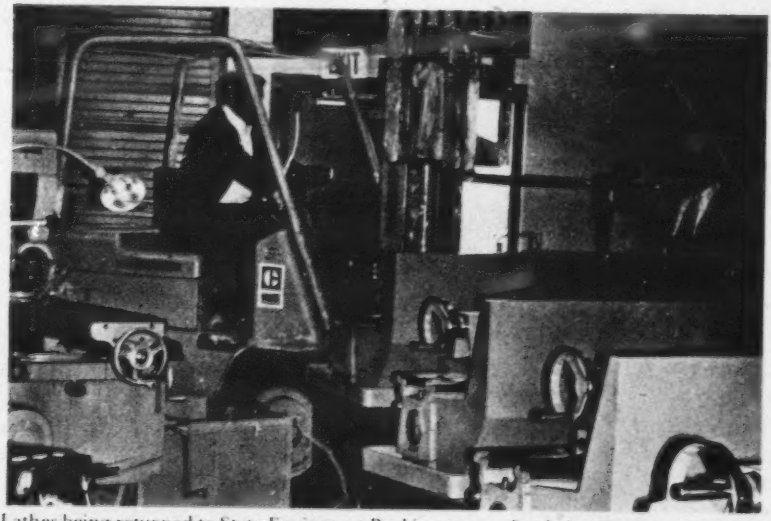


Basic to a State Equipment Pool serving industrial training is a truck, trailer, and forklift.

In the operation of an equipment pool to serve industry's immediate needs, it is important that an adequate budget be provided. The budget for the equipment pool must provide for purchasing, warehousing, inventorying, maintaining, transporting, and installing equipment. If

adequate funds are not available to provide for all aspects of the pool's operation, it cannot serve the full purpose for which it is intended. An adequate equipment pool is no minor project budget-wise and should not be initiated without thorough planning. Assisting in funding a state equipment pool could well be a role for federal agencies such as the Economic Development Administration. This would be of most effective assistance in the economic development of depressed areas. Often the political power structures are such that the more populous and industrially developed sections control the state budget to such an extent that it is virtually impossible to secure funds for establishment of a state equipment pool to support industrial training for depressed areas. When this situation exists, the industrial development and vocational-technical training agency must seek outside funding such as from the EDA or a regional commission to get the programs operational.

The establishment of an adequate equipment pool to provide start-up training for new industry requires that an agency avail itself of all available resources. Resources from which equipment can be obtained are: state purchases; purchases through grants received from the Economic Development Administration; regional development commissions such as the Appalachian Regional Commission, Ozarks Regional Commission, Coastal Plains Regional Commission; local vocational training agencies; industrial donations; industrial loans; National Industrial Equipment Reserve (NIER); federal surplus property; and federal excess property. The equipment pool must assume the responsibility for warehousing, tagging, maintaining, inventorying, and transporting pool equipment to training sites.

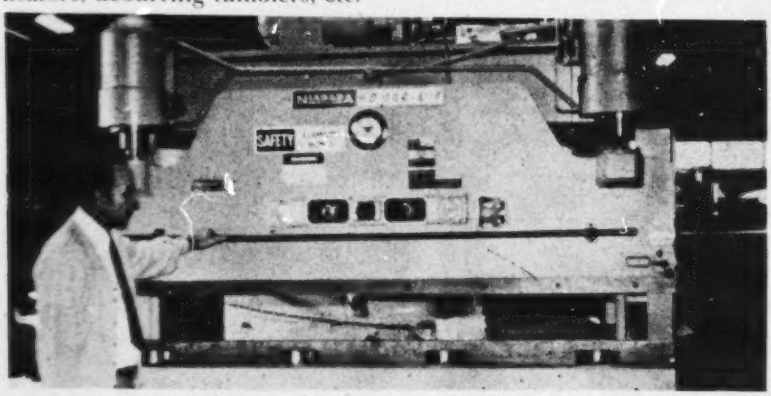


Lathes being returned to State Equipment Pool inventory after being in a Special Schools Training Program.

In some states it may be necessary to secure the enactment of special legislation authorizing the establishment of an equipment pool. In 1970, special legislation was passed by the Oklahoma Legislature authorizing the establishment of the state equipment pool. This legislation is found in Title 70, paragraph 14-106 of the Oklahoma Statutes. In addition to authorizing the establishment of the equipment pool, the legislation authorized the maintenance of such a pool, directed the State Board of Vocational and Technical Education to adopt and enforce such rules and regulations as are necessary to carry out the provisions of the law, and authorized the transfer of equipment from school to school as needed. The law's reference to schools includes such programs as special schools conducted for start-up training for new industry by the state agency, skills centers, area vo-tech schools, technical institutes, and community colleges. For the equipment pool to operate properly, all equipment must be considered as state-owned and only on assignment to individual schools for the duration of specific training programs.

While little is stated in this monograph regarding the possibilities of industrial donations of equipment to the state equipment pool it is an often untapped resource with its success depending to a great extent on industry's direct involvement with the state's vo-tech training agency. Its success will also be affected by the state's equipment pool manager's resourcefulness, enthusiasm, and time.

Industrial loans of equipment for special purpose training directly related to industry's needs is another matter. Several states have reported good success in getting industry to loan specialized training equipment for short term pre-employment programs. Oklahoma's special schools program reports loans of such highly specialized items as laser beam equipment, die cast machines and special dies, coil winding machines, Bullard lathes, screw machines, vertical turrett lathes, vulcan cut-off machines, grain harvesting machines, dielectric mold line, chick duplicators, deburring tumblers, etc.



Metal brake being installed by Special Schools program for new industry training.

In unusual cases, such as those involving liability insurance technicalities where it is not realistically practical for the industry to loan technical training equipment to the state equipment pool, the state may purchase the equipment then sell it back to the industry upon termination of the training program.

Many resources and aspects of the equipment pool must be explored if the program is to be operationally successful. State agencies are cautioned to explore all possibilities for industry to loan or donate highly specialized equipment before purchasing it from state or federal funds. State and federal funds for equipment are usually in short supply and nothing makes a state agency head look more foolish before a legislative budget hearing than to be questioned on the fact that an expensive, highly specialized piece of equipment was purchased for a one-time, short-term training program and now sits unused, gathering dust in the state warehouse.

If a highly specialized piece of equipment must be purchased for a crash training program, the possibility should be explored of loaning it to an ongoing technical training program. Oklahoma Special Schools for Industry Training purchased a Carmody Trainer relating to fluid and pneumatic flow instrumentation for a specialized training program for the Weyerhaeuser Corporation. When the Weyerhaeuser training program was completed, the Carmody Trainer was loaned to Eastern Oklahoma State College for its fluid power technician training program. As a result, the college training program is better equipped and the state's considerable investment is in regular use but is still available for recall if needed by special schools.

One caution regarding the state equipment pool. As mentioned previously, an adequate budget must be developed so equipment currently in use by industry is always in the pool. A pool of modern industrial training equipment is an asset to industrial and economic development. Nothing turns an industrial prospect off quicker than seeing inadequate and outdated equipment in a state warehouse.

A final word of caution--it is often more difficult to continue to receive adequate funds to support a state equipment pool than it is to get funds to initiate such a program.

Mobile Vo-Tech Facilities Serve Training and Development Needs

One objective of any vocational training system or economic development program is to reach and to provide training to as many individuals as possible. "Outreach" is a system or method of promotion in vocational education to reach beyond the normal influence sphere of the vocational training facility and inform individuals of training programs that are available. Outreach might also be termed student recruiting or career development counseling. By whatever name an outreach program is called, it lends itself well to a mobile facility--a facility that can tour the most populous and the most obscure sections of an economically undeveloped or deprived area providing job and training information to the citizenry.

Several states have utilized some mobile facility outreach programs. Some metropolitan areas have provided mobile units to elementary schools for orientation programs on careers and vocational training.

One of the most extensive outreach programs has been a program operating in seven of Oklahoma's southeastern counties since 1971. The southeast Oklahoma program is called Career Development and brings vocational counseling, training information, and job information to secondary students and adults in the seven-county area. The seven counties were selected for the pilot career development program because they were in an area that was a part of the Ozark Region's Economic Development area, virtually economically and industrially undeveloped, mountainous, sparsley populated, low per capita income, but populated with citizens characterized by dependable work habits. The seven-county area was also selected for the outreach program because it was being served by a new multiple-campus vo-tech school funded principally by an EDA grant.

Career Guidance information vans being utilized in "outreach" program for Kiamichi Area Vo-Tech School district presents job and training information to high school students and adults.

The vocational school sites in the seven-county area were often obscured by miles and mountains from the citizenry they were built to serve. The outreach program of Career Development was taken to the people utilizing three large mobile homes specially designed to house career information materials, audio-visual materials, an office, a restroom, and individual and small group counseling areas. The units are staffed with career development specialists, vocational educators, a secretary, and a tractor driver maintenance person. The vans move to new locations on a frequent basis and during the course of a year appear in every community in the area. The mobility of the units is a major factor in the Career Development program's efforts to bring career information and vo-tech training information to within easy access of every person in the area. The philosophy of the mobile career development laboratory is, "You can't prepare people for jobs if they don't know where the jobs are or where preparatory skill training is available."

Outreach service is not the only aspect of vocational education that lends itself to a mobile facility. Some states have equipped mobile units with machine tool shops so machine tool training can be more readily available. Other facets of vocational education known to be served by mobile units are: nurse aide training, practical nurse training, needle trade training, cashier-checker training, unit record training, plastics laboratory, computer graphics, and many other areas. Training for heavy industry is very limited if you consider mobile training facilities to be confined within the four walls of a trailer, motor home, or van.

Two of Oklahoma's many mobile training facilities designed to serve young people, adults, business and industry.

A special kind of mobile training facility is the Special Schools concept developed and refined by vo-tech agencies in South Carolina and Oklahoma. The special schools concept is a mobile program that is not confined to a single unit or mode but is a concept of training, one that is capable of moving or being moved anywhere to meet a training need.

The special school as a mobile training facility is discussed in greater detail elsewhere in the monograph.

Special Schools for Industry Training: A Different Concept of Mobile Training Facilities

In the early 1960's the South Carolina Technical Education Committee, under the direction of the late A. Wade Martin, Executive Director, developed a unique vocational training concept which they termed "special schools." In the late 1960's this concept was brought to Oklahoma following an in-depth study of vocational education and training and its relationship to economic development. The report on the Oklahoma study was entitled Vocational and Technical Skills and Literacy System and was prepared by LTV Systems Management Services. The special schools program has since been adopted by several other states and modified to fit each state's individual mode of operation.

The special schools concept enables the state vo-tech training agency to make a training commitment in support of industrial and economic development. The concept also enables the state training agency to react to industrial prospects in a quick, effective, and forceful manner.

The need to offer quick, effective reaction to industrial prospects led to the development of the special schools concept. Experience led vo-tech and industrial development leaders in both South Carolina and Oklahoma to conclude that there had to be a better way to do "crash" training programs for new and expanding industry. Historically, state vo-tech training agencies have not been directly involved in training for the development of job skills. Typically, vo-tech skills training has been assigned to local schools, colleges, technical institutes, etc., with the states providing funds, consultant and supervisory services, and program development support. This has worked effectively for subsistence-type training; however, with crash training programs, local institutions have often been slow to react to new industries' training needs. Local school officials are typically committed to ongoing programs and are hesitant to put funds into "risk capital" type of operations. Another factor to be considered is that in many states not all communities are included in an area vo-tech school or community college district; therefore, if a state agency is not responsible for such training, the needs of the industry cannot be served.

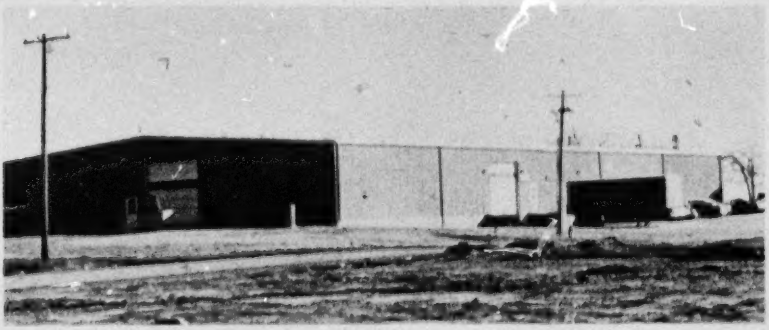
A state agency providing crash training in support of industrial development has proven to be an effective way to bring training services quickly to communities of the state. This is the basic tenet of the special schools concept. Training is provided to any section of the state without regard to the fiscal abilities of the local communities to support the training program. A state training agency can work in close coordination with industrial development officials in recruiting new industry and explaining the state's program. There need be no hesitancy on the part of development officials in presenting the fact that crash training is available regardless of proposed location of an industrial plant.

Through the state's special schools, the same flexibility and thoroughness of training is available anywhere within a state's boundaries.

In some instances it has proven extremely helpful for representatives of the vo-tech training agency to have offices with the state industrial development agency. In this way the two agencies can be in a position to mutually support each other. It has often been said that there is no clear-cut communication system between education and the industrial, economic community. What better starting point for the development of this communication system than housing the education and training agency representatives in the same office with industrial development where they will have constant contact? From this daily contact, they will be able to develop an appreciation for each other's problems and capabilities.

Oklahoma has found it effective to have representatives of the state vo-tech training agency serve as full-fledged members of the state's industrial development teams that regularly tour various sections of the nation recruiting new and expanding industry. In Oklahoma a vo-tech representative is always included on the Governor's industrial development advisory team. The inclusion of vo-tech representatives on industrial development tours makes it possible for the industries being called on to have direct information as to what the state is capable of doing in support of skill training. The vo-tech representatives have authority to commit the state on the spot to support crash training for the industry within specific limits.

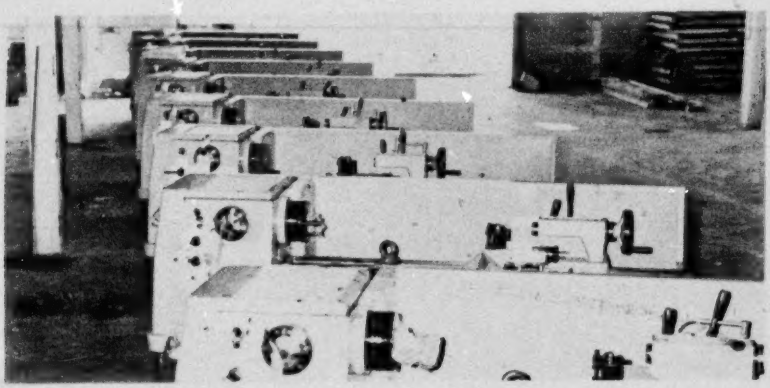
The special schools concept is special in that it represents schools without campuses, unless one considers the whole state the campus. The only permanent building or buildings needed by the special schools is warehousing facilities where equipment is stored, repaired, and inventoried before being shipped to the next training location. This makes the special schools program mobile in that it is adaptable, versatile, and capable of being moved to where it is needed.



State-owned equipment warehouse where "Special Schools" training equipment is maintained and stored between "schools."

The special school moves to the community where the training is to be done. Prior to the special schools' moving to the community to be served, representatives of vo-tech go to the community and make arrangements for a facility in which to conduct the training. At this stage of the program's development, the community may be given the opportunity to participate in the special schools program. The community is usually requested to provide the local training facility to the state's special schools program. Examples of facilities that have been provided are multiple purposes spaces in newly constructed vo-tech facilities, abandoned school facilities, vacant store buildings on main streets of small rural communities, empty warehouses, and portable buildings provided for the specific training purpose. Local chambers of commerce or local industrial development authorities usually pay the rent for temporary facilities or provide utilities for the training. Many local communities often will be found to have fierce local pride and insist on contributing to the support of the special schools program. Experience of states utilizing the special schools concept bears out that local communities should be encouraged to provide a part of the special schools facilities cost whenever possible. Regardless of the local communities' ability or desire to participate in the cost of providing the special schools crash training to the new industry, the commitment will be kept because the final responsibility for new industry training lies with the state vo-tech training agency. Local communities should be cautioned to realize that the attitude they have toward assisting the special schools program may reflect to the new industry the communities' attitude toward new industry in general.

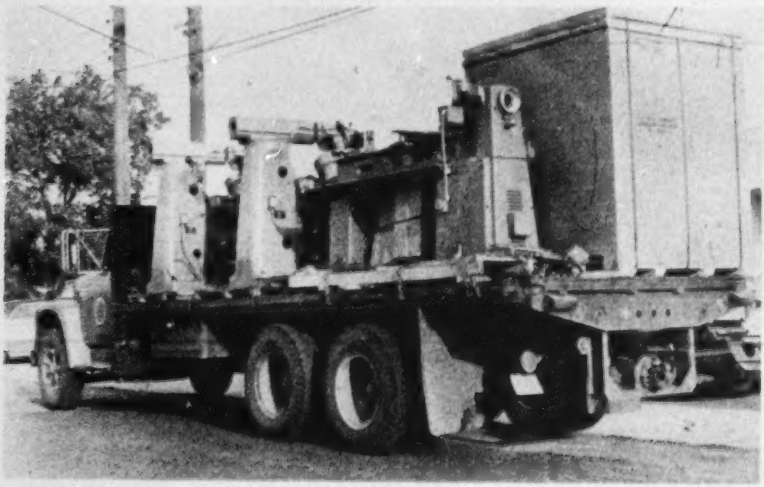
Another training facility that should not be overlooked as a location for a special schools program is the facility being constructed for or to be occupied by the new industry. Special schools can be set up in the vestibule of the new plant or in the new plant itself prior to its being readied for on-line production.



Lathes being installed for a "crash" training program for several area industries which are expanding. School site is an abandoned facility formerly housing a chemical company.

One thing that has been found to be different in regard to buildings and facilities for special schools programs as compared to buildings for permanent vo-tech training facilities is that there is no need for aesthetic value in buildings for housing special schools. The real aesthetic value of special schools lies not in the attractiveness of the building but in the fact that those students completing a special schools program are virtually assured a job. The carrot at the end of the stick, a job upon completion of the program, is what recruits students for special schools.

While special schools are without campuses, they are not schools without equipment. Elsewhere in this monograph, the state equipment pool concept was presented. The major purpose of this state equipment pool is to provide the equipment for each and every special schools program. Some additional equipment may need to be purchased for training for a particular industry. Some training equipment may need to be called in from the greater pool of state-owned equipment on loan or assignment to various educational institutions in the state. Officials of vo-tech training agencies are cautioned against recalling equipment from ongoing educational programs unless such equipment is being inadequately or improperly utilized.



State-owned equipment, called in from an area vo-tech school, being transported by State Equipment Pool truck to "crash" training project conducted by Special Schools.

Upon completion of the crash training program which the state committed to the new industry, the special school closes down. Equipment utilized in the special school is returned from whence it came--state equipment pool equipment back to the state warehouse, other state-owned equipment back to institutions from which it was temporarily removed, and industry loaned equipment returned to the industry.

Personnel to staff a special school is provided by the state vo-tech training agency on an as-needed basis. The only permanent staff members for the special schools program are those on the state staff who serve in administrative and training roles such as industrial engineers, training specialists, technical writers, equipment maintenance specialists, warehousemen, and truck drivers. The staff for the actual operation of a special school is recruited as needed. Personnel for the special schools staff may come from the industry for which training is being done, individuals living in the area where the training is being conducted, or vo-tech instructional personnel from area or local vo-tech schools. Often it is necessary to go outside the local area and occasionally outside the state to obtain highly specialized instructors for special schools.

Staff for special schools programs should be temporary employees who serve only during the duration of a special schools program. One thing that must be kept in mind in employing instructional staff for special schools is they must have applicable industrial experience. Another factor that should be kept in mind is instructional personnel hired on a temporary basis may have to be paid salaries considerably higher than the going rate for instructors in vocational schools. Some states have found that rates for temporary employees equal to 125 percent of the ongoing rate that the person would have been receiving in regular employment is necessary to attract quality people to instruct in the special schools program. The rationale behind this is that special schools instructors may have to relocate and the employment is temporary.

The special school concept is uniquely designed to assist in the industrial and economic development of a state or region without becoming a fiscal liability to the state agency responsible for vocational-technical education and training. The special schools program operates with no permanent buildings other than the central warehouse housing the state equipment pool stocked to serve the crash training needs of new and expanding industry. The special schools program has no permanent instructional staff to create an expensive personnel overhead. Because it is a creature of the state, it can start up on short notice and close down upon completion of the required crash training program. Also, because special schools is a creature of the state, it is versatile and capable of being moved to and operated where needed without being affected by the affluence or the privation of the area where new or expanding industry is located.

Part II

The Role That Adequate State and Local Vo-Tech Management Systems Play in Focusing Training Funds Toward Real and Identifiable Training Needs

The Product and the Package of Management Information

In the past decade there has been a rapid increase in the amount of information and data required for decisions relating to programs of vocational-technical education. Concomitantly, there has been a rapid increase in the amount of information and data which could be made available to decision makers in vocational-technical education. The rapid expansion of programs, the wide diversity of programs, and the flexibility required of state departments to move in the direction indicated by the need have vastly complicated the responsibility of state leaders in vocational-technical education. A few years ago, decisions facing administrators of programs were relatively simple in that they consisted primarily of the allocation of resources to a relatively few traditional programs of training. Alternatives and the complexity of the choices which are available have increased so rapidly that the administrator is now faced with a myriad of decisions unthought of only a few years ago. The choice now is not only between the traditional subject matter divisions but has been expanded to levels of secondary, post-secondary, and adult. It has been further complicated by alternatives which include short-term programs, programs of longer duration, and skill training programs for industry. Cutting across all of these possible decisions is the further mission of the programs to develop special sensitivities to the disadvantaged, the handicapped, the underemployed, and the unemployed. These complicating circumstances matched with increased numbers of students to be trained, increased resources to be allocated, and greatly increased knowledge about the learning process have placed additional stress and importance on the quality of decisions made regarding programs in vocational-technical education.

Obviously, there is a need for more information, but the problem is much more complex than this. This information must be current, accurate, available, and in a form which is understandable and acceptable. The information must be combined, molded, and mixed in ways which are meaningful. The information must be packaged so its application to immediate problems is readily apparent. If information is to be used, research indicates that it must be readily available. Information seekers do use comprehensive information in their decision-making process but only that which can be readily obtained and in a form that is needed.

The process of gathering, massaging, and providing information is greatly enhanced if all parties involved have come to accept the fact that information is essential, if they have identified the kinds of information needed, and if they have specified the form of the information desired. Until we begin to look at an information system in this light, the data

gathering, the computer programming, and the report publication have little chance of impacting upon programs in vocational-technical education. These should be the goals of those working with information and data--to assist with decisions, to improve the decision-making process, to bring about change in programs, and to assist in the understanding of how students learn, why training is necessary, and what types of training may be most appropriate.

How do we begin to gather and provide the types of information which may be required? The first thing necessary is to determine the present state of the art, the accumulation of a foundation on which we can base some estimates of progress. Vo-tech agencies must begin to gather complete and accurate data which tells about the teachers they have; about the students that are enrolled; about the equipment and facilities that are available; about the dollars that are being spent; about the manpower needs of the state and region; about the other programs which may be supplying trained manpower; about the effectiveness of training in terms of student placement, advancement and career development; about those citizens in the state and localities who need special kinds of training programs to effectively move them into the social and employment mainstreams. Collecting those kinds of data which tell the present status of an agency is the first step in the data-gathering process. This information must then be programmed in such a way that it is kept current, readily available, and combinable with other kinds of data as needed. It is futile to try to foresee all of the possible uses of information or requirements for information which may occur. A system must be responsive and flexible enough that it can quickly meet the information requirements of the decision makers at the state and local levels.

An Effective Vo-Tech Management Information System

Based on a study of the practices employed in other states and the implications of experiences in Oklahoma, it is believed that an effective vocational education management information system should contain the following basic essentials:

1. Demand data showing the job opportunities in the state and regions of the state for the present and estimated for the future (three, five, and ten years).
2. Supply data showing the number being trained and available for jobs by occupational classification from all sources (public and private sectors).
3. Placement data--a one-, three-, and five-year follow-up of graduates to determine their job classification, salary, analysis of training received, and other information.
4. A system to determine occupational aptitudes of secondary students and adults who are available for training.
5. Cost-benefit data.
6. Student data including age, grade, race, sex, economic or educational disadvantagements, and handicaps if any.
7. VIEW--Vital Information for Education and Work--a system for counseling students about job opportunities and pertinent information about those jobs.
8. Equipment inventory system.
9. Budgetary systems and cost analysis.
10. Teacher information.

A discussion is in order to show how the Occupational Training Information System (OTIS) is used for decision making. The following represent subsystems of the Occupational Information System which is used for decision making in Oklahoma.

The Occupational Training Information System is one which provides an annual update of the supply of and the demand for vocational and technical trained individuals in Oklahoma. The difference between the number of jobs available and the actual supply of graduates represents the number of individuals needed above the estimated supply. The program priorities are established according to the net demand as shown in OTIS. Other data is used along with OTIS to provide the Governor and the Legislature with the number of new training programs needed and the benefits that Oklahoma can expect from this added investment. After the program priorities are established, no program is approved that is not justified by OTIS or a supplementary survey.

Placement data is necessary to evaluate the need for and the adequacy of the training. Placement data is derived from the Oklahoma Student Accounting System. This system provides the school name, class name, student's name, social security number, occupational objective code, sex, age, grade level, ethnic background, disadvantagements if any, and any handicapping situation. To this information is added completion and follow-up data on one-, three-, and five-year periods. The follow-up data is published annually so one can observe the placement record by division, occupational objective, and individual programs. The most recent placement data on secondary school graduates or those who have completed the vocational training programs is broken down as follows:

18,572 secondary school graduates
10,805 are employed
6,448 are in advanced training programs
810 are not in the labor market
509 are unemployed or seeking employment

This represents a 2.74 percent unemployment rate which compares with a 17-18 percent for high school graduates on the national basis. The unemployment status of full-time adults who have completed their training is equally as low and, in fact, somewhat lower than it is for secondary students. Post-secondary students or those who have been enrolled in collegiate-type vocational training programs below the degree level indicate only 2.5 percent of them are seeking employment; therefore, it is obvious that in Oklahoma vocational education training makes a difference and that students who complete this training do become employed.

In 1974 the Oklahoma State Department of Vocational and Technical Education funded a study which in effect caused the General Aptitude Test Battery to be administered to all 10th and 12th grade students and to adults who became clients of the Oklahoma Employment Service. The purpose of collecting this information was to determine the vocational aptitudes of Oklahomans in order to make decisions in regard to the kinds of industry Oklahoma should recruit. This information was used by the state's industrial development team for planning purposes.

Cost-benefit data have been calculated and collected. This data indicates that the average vo-tech graduate of a program will pay taxes (state and federal) sufficient to reimburse the cost of training in a two and one-half year period.

A cost-benefit system has been developed by Linear Programming. Linear Programming is not new but it is probably new to vocational education. Under this program, it is possible to assess many alternatives to facilitate rational decision making. One program maximizes entry-level wages by providing for the selection of those programs which will yield to maximum wages based on certain constraints. A second pro-

ram maximizes job placement, a third program minimizes program costs by developing a program mix which incurs a given minimum cost. The minimum cost objective function was included since tax monies available for training students are limited. A fourth alternative maximizes social benefits. The information gained from Linear Programming can be effectively used as a management tool.

The VIEW program (Vital Information for Education and Work) provides brief, easy to read, important information on 287 occupations most commonly available under vocational training. The information includes a brief job description, the job requirements and qualifications, salary and job information, supply and demand data, preparation and training needed, sources of training, sources of information, and related jobs. VIEW information is located at 465 schools, institutions, and agencies. This vocational counseling tool has been widely accepted and acclaimed. One hundred professional jobs, 43 job clusters, 35 wood and timber jobs, and 13 Indian arts and crafts jobs are also included as supplements.

Oklahoma is now in the process of developing a keysort system to supplement VIEW. The keysort would give the student an opportunity to link what he knows about himself to a group of occupations which fit his interests and abilities. This structured search will add a great deal of importance to existing systems. To further develop OTIS, Oklahoma plans to add more occupations; computerize the total system for large schools, colleges, and universities; add a system for persons with reading difficulties by placing the information on a sound page or film strip with sound. Improved vocational counseling and guidance is one of the major needs of the educational system.

The equipment inventory system is currently being completed. When completed it will involve 55,000 items with an inventory value of $14,000,000 and includes only equipment costing $25 or more. The system names the item, original cost, date of purchase, date of major overhaul, etc. The system provides for obtaining a printout on the number and location of all 14-inch lathes, for example, or any other grouping of equipment which may be needed. Because of the inventory system, any piece of equipment in the equipment pool may be assigned to a school on an immediate recall basis if it is not being used in an industry training program. If a need arises for this equipment, it can be located and recalled within a 24-hour period. This computerized inventory facilitates the location of equipment needed for the new industry training program when and if equipment needed for the training program is not located in the warehouse. Oklahomans believe this inventory system is a big plus in the total vo-tech management information system. The $14,000,000 mentioned above does not include equipment owned by local school systems or any equipment that was obtained from the National Industrial Equipment Reserve nor does it include any Federal Excess Property equipment. The inventory indicates that there is cur-

rently well over $2,000,000 of equipment either located in the warehouse or involved in industry training programs at the present time. The inventory further indicates that less than $500,000 of the equipment is presently stored in the warehouse.

Budgetary systems are basic if immediate and accurate information is to be available first for planning, then budgeting, and later for approval purposes. Cost analysis by programs is desirable so whenever a particular program is suggested the cost for starting such a program can immediately be known. The cost analysis includes start-up costs and maintenance or operational costs. The start-up costs include those costs for instructional equipment, floor space, and specialized costs, if any. The state's responsibility in Oklahoma is for purchasing and maintaining title to all major equipment in the vo-tech schools and matching 50 percent of the cost of equipment in new programs located in regular high schools. Operational costs in the vo-tech schools are shared approximately 50 percent by the local school district and 50 percent by the state. As an example of cost analysis during 1975, Oklahoma trained in its special schools program 2,236 people for new and expanding industries. The cost per trainee was $206. Since 1968, Oklahoma's special schools program, discussed in detail elsewhere in this monograph, has trained 16,786 people for 188 new industries. A study of these figures shows that this type of training is the most cost effective that Oklahoma does, and such calculations form a basis for the budget process.

The Teacher Information System is an annual update of the list of teachers in secondary programs by division. The data includes name, school, social security number, age, race, sex, subject taught, college attended, degree held or number of college hours, industrial or business experience, status of teaching certification, and teaching experience. It also accumulates a list of people in industry who may be potential teachers. This list greatly facilitates the recruitment process when a new program is approved.

Management Systems Work in State Vo-Tech Agencies

An effective management system in any business is one that pulls together in a systematic way all the pertinent information needed for decision making. A management information system then is a prerequisite for an effective management system. The previous discussion on information systems was intended to set the stage for showing how this information is used in the decision-making process.

Effective Management System

People influenced by it:
- Understand its purposes
- Agree with its purposes
- Know how to use it
- Are in control of it
- Can influence its revision
- Receive timely feedback

Most administrators of state and local education agencies have felt that because education is difficult to measure--that management systems are not appropriate for schools or state education agencies.

State vo-tech agencies have generally deviated from this position and have been installing management information systems and management systems. The Oklahoma State Department of Vocational and Technical Education has adopted a management system called Management by Objectives (MBO) and has been operating under it for the past four years. Under a grant from the U.S. Office of Education, the Oklahoma State Department of Vocational and Technical Education has provided technical assistance personnel to 30 other states to help them install an MBO system. This MBO system was developed after studying various management systems operated by business and industry.

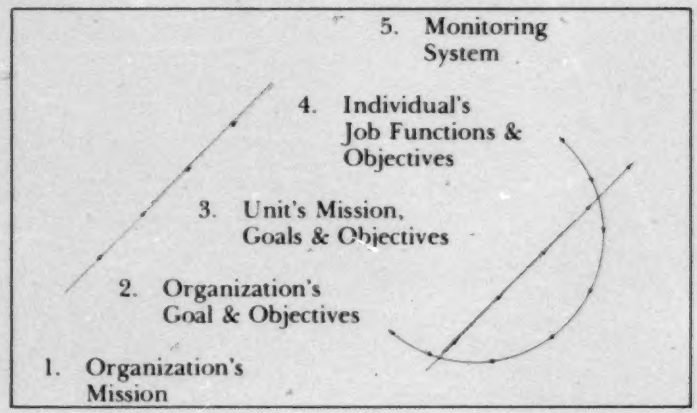
The purpose of discussing the MBO system is not to attempt to sell MBO as the best management system. Neither is the purpose to try to impress anyone because Oklahoma has received considerable state and national attention for its MBO system. The purpose is to show how the MBO system makes use of the various components of the management information systems and relates that to planning, budgeting, and evaluation.

Allows the individual to more nearly tailor the job to fit his uniqueness, while fulfilling the demands of the organization.

In 1975, after Oklahoma's information system indicated a need to increase enrollment at all levels but more specifically in certain locations, the following goal was developed:

> To concentrate efforts in expanding skill and technical training in the areas of greatest need: in the urban areas where the people are; and in those sparsely populated sections of the state where high unemployment exists.

Several objectives were developed in each of Oklahoma's vocational-technical divisions to impact on this goal.


5. Monitoring System
4. Individual's Job Functions & Objectives
3. Unit's Mission, Goals & Objectives
2. Organization's Goal & Objectives
1. Organization's Mission

For example, the Trade and Industrial Education Division set a goal of 25 new programs all of which were located in either urban areas or rural high unemployment areas. In addition, another objective called for recruitment from the unemployed and disadvantaged and/or hand-

icapped groups and called for setting up a flexible structure of training programs that facilitated easy entrance into and exit from employability training. The goal and most of the objectives were accomplished.

Basic Ideas

1. The better you understand what it is you are trying to accomplish, the greater your chances of accomplishment.

2. Progress can only be measured in terms of what one is trying to make progress toward.

Because the MBO system provides for a monitoring system, it is easy to keep up with the progress on the objectives and to apply pressure when and where needed. The performance review is an important part of the monitoring system.

Performance Reviews

Monthly Reports
- Brief, Written
- Problem Oriented
- Require Response

Quarterly Review
- Interface subordinant & supervisor
- Formal
- Scheduled
- Achievement oriented
- Look to future

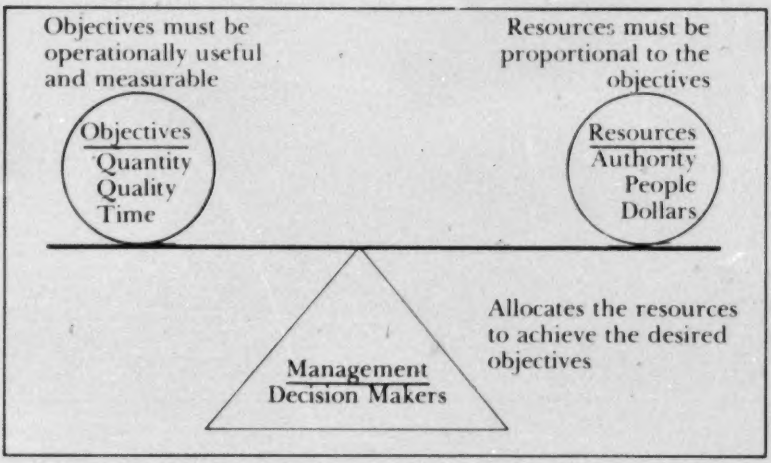
Since industrial advisory committees for local programs have been identified as desirable, Oklahoma established an objective to increase the use of advisory committees to 65 percent of all programs. That objective was attained, and a new objective to use advisory committees in 90 percent of all programs has been set.

Hesitancy to delegate authority may be a problem. MBO facilitates delegation and appears to result in greater staff performance.

Benefits of Delegation

1. Frees supervisor for more important activities.
2. Develops a better job understanding for both the supervisor and staff.
3. Facilitates staff development, communications, initiative, and motivation.
4. Increases the efficiency and effectiveness of the organization.
5. Provides for greater accountability and commitment.
6. Lets staff member know where he stands when working with others.
7. Improves competency of staff members.
8. Results in greater performances from staff.

The budgetary system pointed out a need to increase the spending of certain set-aside funds for the handicapped. As a result, appropriate objectives were established which resulted in an increase in program expenditures and a resulting increase in the number of handicapped persons receiving training.



Last year the evaluation system indicated a general need to improve the quality of instruction for adults. One of the results was to develop plans for a competency-based staff development program for adult teachers. That and other objectives which were set should allow Oklahoma to show marked improvement in this area.

Two years ago the student information system indicated that little was being done to contact dropout students from either the secondary or post-secondary sectors. As a result, a series of departmental goals including public information objectives caused the state legislature to pass a law requiring all educational institutions to notify the Oklahoma's Vo-Tech Department and provide lists of dropouts. Coordinated programs involving local vocational counselors and the state staff provided for contacts of most of the dropouts to encourage them to enter vocational training programs where appropriate. Again, this action provided for many dropouts to re-enter a training program.

What MBO Does for You

1. Forces you to look realistically at your job.
2. Provides feed-back on how well you are doing your job.
3. Establishes priorities for your efforts.
4. Allows you to accept added responsibility.
5. Attaches $ to activities.

After four years' experience with MBO, Oklahoma's Vo-Tech staff has strongly endorsed the MBO system as being an effective management tool. It is the personal observation of the authors that MBO has increased the efficiency of the Department by at least 25 percent. Individual accomplishments have risen accordingly.

Part III

Suggestions for Making Federal Agencies More Effective in Assisting Industrial and Economic Development

It might have been wise for this section of the monograph to have been entitled adumbrations rather than suggestions. It may be desirable to give sketchy representation or outline of problems encountered and suggestions for overcoming them rather than making specific suggestions for change within and between federal agencies so they can more effectively serve work force training and economic development.

Most problems of duplication of effort by agencies have come not from the legislation creating the agency or assigning its function but from rules and regulations for operation of the agencies. A suggested approach to be taken in the future when new legislation is passed or new agencies are created is to inventory existing agencies and their functions to see if specific services called for in the legislation can be contracted for rather than creating duplicatory services in an agency.

It is believed that a single state agency should be responsible for vo-tech education and training within a state. This has been the philosophy under which vocational education has operated since the Smith-Hughes Act was passed in 1917 giving federal financial support to vocational training. It has been a constant battle to retain the single or sole state agency concept because of duplicating legislation. It is not just federal agencies that duplicate each other's efforts--state agencies are guilty of the same charge.

During the Johnson administration, the Job Corps program was created to provide vocational training for disadvantaged youth. The Corps was created not as a facet of vocational education but as a Department of Labor project. Supposedly, vocational education had failed to meet the training needs of these young people, whereas the Department of Labor could get it done by going to private industry to contract for educational and training services. Vocational education agencies were never given an opportunity to see what they could do to train disadvantaged youth under the Job Corps concept utilizing newly available Department of Labor funds. In reality, Job Corps projects were contracted to private industry which pirated outstanding vocational teachers and administrators from ongoing vocational programs to staff their installations.

For years one of the policies that has hampered vo-tech training agencies has been the restricted utilization of federal excess property. Federal excess property is made available to states for use in training programs supported wholly by federal funds such as the former Manpower Development and Training Act (MDTA) programs and the present Comprehensive Employment and Training Act (CETA) programs. Federal excess property cannot be integrated into state equipment pool inventories or utilized in nonfederal training programs along with other state-owned training equipment. This hampers the state agency's efforts to provide training in support of industrial and economic development. It would be more practical if the state agency could look to all sources of equipment in order to get crash training programs for industry under-

way with minimum delay. As it is, federal excess property is off limits to training programs supported by state funds. Vocational training agencies at the state level should have direct access to federal excess property similar to the access enjoyed by some federal agencies. To what better use can federal excess property be put than to provide skill training equipment to secondary, post-secondary, and adult vocational training programs?

Federal surplus property available directly to state-supported vo-tech training programs has been operated like a Yo-Yo. Sometimes surplus property has been available direct to the state vocational training agency with the agency's making selection from federal stockpiles. At other times, federal surplus property is available to the state training agency through the State Agency for Surplus Property. Operating through the State Agency for Surplus Property, the state training agency must compete with other state agencies and may not enjoy the highest priority and thus be forced to choose equipment from a "picked over" inventory.

Some federal agencies should be phased out of the industrial training equipment pool business. Since World War II the federal government has been operating an industrial training equipment loan program for vocational schools known popularly as NIER (National Industrial Equipment Reserve). Training needs could be better served with less red tape if NIER were eliminated and its equipment turned over to be administered the same as the Federal Excess Property program. Adoption of this recommendation would eliminate one federal agency and the states' vocational training agencies would have one less set of federal regulations with which to deal.

Consideration should be given to removing state surplus property agencies from the Department of Health, Education, and Welfare (DHEW) supervision and allowing them to serve as excess property "branch" depositories under the logical supervision of the General Services Administration (GSA). More authority and responsibility for handling and utilizing excess property should be given to the states. The states are best equipped to determine what training programs are most critical to their economic well-being and in the most need of federal excess property to utilize in training.

At present, if the state vocational-technical training agency gets a grant from one federal agency, that agency may require only a simple report as to how the grant was expended. A grant from another agency may require many copies of (1) intent, (2) plans, (3) specifications, (4) advertisements for bids, (5) tabulation of bids, and (6) ad infintum. In the final analysis, the federal requirements may be a duplication of existing state requirements.

Federal agencies that overlap the responsibilities of other state and federal agencies have resulted in "layering" of supervisory and adminis-

trative personnel doing the same thing, thus diverting inordinate amounts of action project funds into administration.

The Economic Development Administration, The Department of Health, Education, and Welfare, and the Department of Labor should avoid duplicating programs and projects. Research should be conducted to determine what agency is responsible for doing what before developing duplicate projects or functions in another agency. The Congress should establish clear lines of administrative responsibility and funding authority before final enactment of new legislation. On-site hearings should be conducted by Congress involving representatives of all facets of public and private activity that could be affected by the proposed legislation. Not all affected by proposed legislation can journey to Washington, D.C., to lobby for or against it. Federal agencies should be required to utilize advisory committees representative of all state and federal agencies affected by the legislation before drawing up proposed guidelines for publication in the Federal Register.

Modifications could be made to excess property and surplus property handling and procedures and to the National Industrial Equipment Reserve (NIER) that would greatly simplify efforts to serve industrial and economic development. Agencies should be required to make every effort to eliminate duplicatory functions at both the federal and state levels.

It is recommended that a single state agency and a single federal agency be responsible for vocational and technical skill training, thus agencies needing skill training to support their functions could go to single sources for assistance at the state and federal levels. This may be "mind boggling" to some but it would fix authority and responsibility where an agency could be held accountable for meeting the states' and nation's manpower training needs. Who can be held accountable under the present proliferation of training agencies and funding sources?

The following recommendations are made specifically for consideration by the Economic Development Administration.

1. EDA should resume supporting construction of vo-tech training facilities as an aid to economic development.
   a. Money from EDA for construction of vo-tech facilities should be funnelled to the schools through the U.S. Office of Education and the state vo-tech agency rather than the funds going directly from EDA to the school. Regional commissions fund vo-tech school construction through the U.S. Office of Education and the state vo-tech education agency and it has been found to work well.
   b. The EDA should require that the state vo-tech agency approve the project, provide for project supervision, and audit the project the same as it does any other vo-tech construction project. It would be appropriate to require a copy of the audit

be filed with EDA.

2. The EDA should support the purchase of equipment for special schools for industry training as described in this monograph.
   a. The EDA could require that the first priority for utilization of this training equipment go to economic development areas.
3. The EDA should support the development of state vo-tech management information systems so decisions affecting manpower training can best serve a state's or region's economic development efforts.
4. The EDA should use its influence to support a policy change which would allow "excess property" to go to State Vo-Tech agencies to support Vo-Tech programs.

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